WE CLAIM:

1. According to one aspect of the invention there is provided a method for dynamic range compression of output channel data from an image sensor comprising an array of sensor cells, the method comprising the steps of:

selecting a window in the channel data, the window having a reference pixel value and a plurality of nearby pixel values, said reference pixel value originating from a reference cell that is one of the sensor cells and said nearby pixel values originating from said sensor cells that are in close proximity to said reference cell;

multiplying said pixel values in the window by a respective weight value to provide weighted pixel values;

adding said weighted pixel values to provide a convolution value;

providing a dynamic range compression value for said window from a selected one of said pixel values and said convolution value; and

assigning the dynamic range compression value to a selected pixel location comprising part of an image.

2. A method for dynamic range compression as claimed in claim 1, wherein the step of providing is effected by dividing the said selected one of said pixel values by the convolution value to provide said dynamic range compression value.

3. A method for dynamic range compression as claimed in claim 2, wherein said selected one of said pixel values is said reference pixel value.

4. A method for dynamic range compression as claimed in claim 1, wherein the widow corresponds only to a chrominance channel.

5. A method for dynamic range compression as claimed in claim 1, wherein the steps are repeated so that the step of assigning thereby assigns a said dynamic range compression value to every pixel location providing a luminance color spectrum for said image

6. A method for dynamic range compression as claimed in claim 1, wherein said reference cell may is a centrally located sensor cell in an array of said sensor cells providing said nearby pixel values.

7. A method for dynamic range compression as claimed in claim 1, wherein said step of multiplying is further characterised by the respective weight value having the effect of Gaussian filtering.

8. A method for dynamic range compression as claimed in claim 7, wherein the step of multiplying is further characterised by all said pixel vales in the window being multiplied by a said respective weight value.

9. A method for dynamic range compression as claimed in claim 1, wherein said dividing has the effect of non-linear filtering said pixels values in said window.

10. A method for dynamic range compression as claimed in claim 1, wherein the steps of adding, providing and assigning are effected by:

$$\frac{i_{ref}}{A + W \otimes I}$$

where i_{ref} is the reference pixel value; I is a matrix representing the pixel values in the window for the luminance channel; W is a weight matrix representing strengths of connections for a corresponding sensor cell in the matrix I; and A is matrix containing decay values of the corresponding cell in matrix I; and $\otimes$ is a convolution function.

11. A digital camera comprising:

an image sensor comprising an array of sensor cells; and

a Channel processing circuit coupled to receive channel output data from the image sensor,

wherein in use the Channel processing circuit selects a window in the channel data, the window having a reference pixel value and a plurality of nearby pixel values, said reference pixel value originating from a reference cell that is one of the sensor cells and said nearby pixel values originating from said sensor cells that are in close proximity to said reference cell;

and thereafter assigns a dynamic range compression value to a selected pixel location

comprising part of an image, the dynamic range compression value determined from the steps of:

multiplying said pixel values in the window by a respective weight value to provide weighted pixel values;

adding said weighted pixel values to provide a convolution value; and

dividing a selected one of said pixel values by said convolution value.

12. A digital camera as claimed in claim 11, wherein said selected one of said pixel values is said reference pixel value.

13. A digital camera as claimed in claim 11, wherein the widow corresponds only to a chrominance channel.

14. A digital camera as claimed in claim 11, wherein said multiplying is further characterised by the respective weight value having the effect of Gaussian filtering.

15. A digital camera as claimed in claim 11, wherein said Channel processing circuit effects the function:

$$\frac{i_{ref}}{A + W \otimes I}$$

where i_{ref} is the reference pixel value; I is a matrix representing the pixel values in the window for the luminance channel; W is a weight matrix representing strengths of connections for a corresponding sensor cell in the matrix I; and A is matrix containing

decay values of the corresponding cell in matrix I; and $\otimes$ is a convolution function.